CHARTER SCHOOLS IN IDAHO

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The population of students served by charter schools in Idaho continues to grow at a modest pace. Charter schools tend to attract students with better than average test scores. Newer charter schools appear to be more effective than schools that have been in operation longer, though this may in part reflect changes in the mix of students recruited to a school over time. A longitudinal analysis comparing gains of individual students before and after their enrollment in a charter school shows that charter schools at the elementary level have been more effective than traditional public schools in promoting mathematics achievement. However, a simple cross-sectional comparison of gains in the two sectors indicates the opposite. Though the cross-sectional analysis is subject to selection bias, the longitudinal analysis is sensitive to differences between the sample of students who move between sectors and those who remain in one sector or the other. If biases from the latter source are more important (and there is some evidence to that effect), our qualitative conclusion about charter schools is similar to that reached by other investigators.

The emerging picture of charter schools in the United States indicates that overall, students enrolled in charter schools are performing no better on standardized achievement tests than students in traditional public schools; indeed, in some grades and subjects their performance appears to be worse. Charter school defenders have argued (correctly) that many of these comparisons fail to take into account the self-selected nature of the charter school population and the fact that many students enroll in charter schools because they have not enjoyed success in more traditional settings. However, more sophisticated studies that have examined student gains rather than level scores in such states as Texas, Florida, and North Carolina have also concluded that charter schools are not as effective as traditional public schools overall, though there is evidence in some of these studies that after the first several years a charter school has been in operation (a notably difficult period for many new schools), differences between the charter sector and the traditional sector become insignificant.

In this paper we extend this literature by examining charter schools in Idaho. In several respects the experience of Idaho is at odds with findings from other states.

Charter schools in Idaho tend to attract students who have been performing above average in traditional public schools. Newer charter schools appear to be more effective than schools that have been in operation longer. Finally, when we employ the methodology used by researchers in other states, we find that elementary students in charter schools have made greater gains than they would have made had they remained in traditional public schools (though the difference in higher grades is reversed or

insignificant). However, unlike other researchers, we also find that our conclusion on this point is highly sensitive to methodological assumptions.

We begin with an overview of Idaho charter schools. We then consider two alternative ways of estimating the effectiveness of charter schools, subject to differing biases. We then show that conclusions about charter schools depend on which of the two methods is used. Although we are inclined to trust one of these sets of estimates more than the other, we cannot claim to have settled this matter definitively.

Overview of Idaho Charter Schools

Since the enactment of Idaho's Public Charter Schools Act of 1998, the number of charter schools in the state of Idaho has grown at a moderate pace. This may be due in part to the conservative nature of the Idaho Charter School statute, which limited charter school growth to six approved schools per year. In addition, no district can add more than one new charter school each year and no district can convert to an all charter district (Idaho Statute, Title 33, Chapter 52, with 2005 amendments, 2005). Charter schools are authorized in one of three ways: through the local school board, by the State Charter School Commission, or by appeal to the State Board of Education. In the 1999-2000 school year eight charter schools received authorization, serving approximately 1,000 students (less than .5% of the total student population). By 2004-05 there were 19 charter schools, serving just over 2 percent of the state's school age population. The 2005-2006 school year added an additional ten charter schools, bringing the total students enrolled in charters to 7,400, or approximately 4 percent of the state's school age population. An additional three schools are expected to open for the 2006-2007 school year. (Center for School Improvement and Policy Studies, 2005).

Table 1. Start Years, Grades Served, and 2005-2006 Enrollment and Wait Lists of Operating Idaho Charter Schools

Operating Idaho Charter Schools									
Name	Starting	Grades	Students	Waiting	Authorized				
	Year	served	enrolled	List	By				
1. Academy at Roosevelt	2005				ID				
Center					Commission				
2. Anser Charter School	1999	K-7	214	300	District				
3. Advanced Regional	2005	7-12		na	District				
Technical Education Center									
(ARTEC) Charter School									
4. Blackfoot Community	2000	K-6	100	85	District				
Charter School									
5. Coeur d"Alene Charter	1999	6-12	420	90	District				
Academy									
6. COMPASS Charter School	2005	K-8	233	199	ID				
					Commission				
7. Falcon Ridge Charter	2005	K-8	270	75	ID				
School					Commission				
8. Garden City Community	2005	K-8			ID				
Charter School					Commission				
9. Hidden Springs Charter	2001	K-9	480	471	District				
School									
10. Idaho Arts Charter School	2005	K-10	515	200	District				
11. Idaho Distance Education	2004	K-12	1000	25	District				
Academy									
12. Idaho Leadership	2002	9-12	150	20	District				
Academy									
13. Idaho Virtual Academy	2002	K-8	1750	0	ID				
,					Commission				
14. INSPIRE Connections	2005	K-9	146	0	ID				
Academy					Commission				
15. Liberty Charter School	1999	K-12	403	1296	ID				
, and the second					Commission				
16. Meridian Charter High	1999	9-12	191	Not	District				
School				provided					
17. Meridian Medical Arts	2003	9-12	196	30	District				
Charter School									
18. Moscow Charter School	1998	K-6	135	20	District				
19. North Star Charter School	2003	K-8	265	600	District				
20. Pocatello Community	1999	K-8	296	300	District				
Charter School									
21. Richard McKenna Charter	2004	9-12	248	0	ID				
High School (formerly Idaho					Commission				
Virtual High School)									
22. Rolling Hills Charter	2005	K-8	227	84	ID				
School					Commission				
23. Sandpoint Charter School	2001	7-9	90	0	District				
24. Taylor's Crossing Public	2005	K-8	Not	Not	ID				
Charter School			provided	provided	Commission				

25. Thomas Jefferson Charter	2004	K-7	270	Not	District
School				provided	
26. Upper Carmon Public	2005	K-6	26	0	District
Charter School					
27. Victory Charter School	2004	K-8	270	576	ID
					Commission
28. White Pine Charter School	2003	K-7	314	300	District

(Center for School Improvement and Policy Studies, 2005; 2005-2006 Idaho Charter School Directory, 2005)

The wait list at most charter schools suggests that these statutory restrictions have limited the number of students served by charter schools. As noted in Table 1, the total students enrolled in the 2005-2006 school year was 8,209 with another 4,671 (57% of total enrollment) students on their waiting lists. Furthermore, twenty (71%) of the schools started with kindergarten, while only eight (29%) offered 10-12th grades. Only one school, Sandpoint, focuses specifically on what is traditionally referred to as middle school or junior high school. Table 2 offers a breakdown of the variations of grades served in the study sample. While there is an overall increase of schools across the grades, there are consistently more schools in the lower grades in comparison to the upper grades. Seven schools made changes in the grades offered over the three years of data observed. Six of these schools added grades to their school over time, usually in increments of one grade per year. The other school, Idaho Leadership Academy, scaled back grade offerings, dropping grades six through eight.

Table	Table 2. Number of Idaho Charter Schools by semester and grades offered									
Grade	Fall 2002	Spring 2003	Fall 2003	Spring 2004	Fall 2004	Spring 2005				
K	7	8	10	10	12	12				
1	7	8	10	10	12	12				
2	7	8	10	10	12	12				
3	7	8	10	10	12	12				
4	7	8	10	10	12	12				
5	6	8	10	10	12	12				

6	6	8	10	10	13	13
7	6	7	8	8	12	12
8	6	7	8	8	8	9
9	4	6	8	9	9	9
10	4	5	6	7	8	7
11	4	5	6	7	8	7
12	4	5	6	7	8	7

Idaho's charter schools are primarily located in three regions of the state: the panhandle, the Boise/Nampa/Meridian region, and the southeast region. The two schools located in the middle of the state and the one school in the panhandle are "virtual" (online) schools that draw from regions across the state. Two districts, both among the largest districts in Idaho, serve as host to multiple charter schools. In the Boise District, charter school students make up 2.6% of the student population. In Meridian, charter schools represent less than a percentage point of the whole student body. The Moscow School District, located in a rural area, has the highest percentage of students served, with 5.3% of students enrolled in the charter school.

Since the passage of charter legislation in 1998, the charter school system has grown to 28 schools in operation as of the 2005-2006 school year. Ten of the charter schools are have been in existence for five years or more, while another three are in their fourth year. During the past eight years two charter schools have had their authorization revoked, and one charter school was discontinued. For the 2005-06 school year, ten charter schools were added to the state's roster. This number is greater than the statutory maximum in part because several charters were approved for the 2004-05 school year but the schools were not operational until the following year. Seventeen of the 28 charter schools in operation for the 2005-2006 school year received charters authorized by the local school district, while the remaining eleven schools received their charter

authorization from the Idaho Charter School Commission (Center for School Improvement and Policy Studies, 2005).

Distinctive Programmatic Elements in Idaho Charter Schools

Each of the charter schools in Idaho adopted a school and curriculum philosophy that sheds some light on the diversity of academic practices across the state. The differences across schools primarily comes from the school administrators' and founders' ideas of what the school should address. The curriculum and instructional method that appears most frequently in Idaho charter schools is the Harbor School Method (Idaho Charter School Network Directory, 2005). This is method of discipline and instruction was developed by the administration at the Liberty Charter School. All charter schools that employ this method are elementary and elementary/middle schools except Liberty Charter School that recently extended grade offerings to the twelfth grade.

Another frequently utilized instructional method is distance learning, with five charter schools offering a distance education program. Although all of these schools provide online instruction, curricula vary. Two virtual charter schools furnish resources for parents who home school their children, whereas others embrace specific programs like Great Books and the K12 Program. One of the virtual schools also serves at-risk students both on-site and through their online program.

Three of the charter high schools describe themselves as career and college preparatory schools, two being industry/field specific with technology and health care specific focuses. Two other charter schools have Outward Bound, expeditionary learning programs. A few others emphasize the arts. This diversity in curriculum design and philosophy resembles offerings in other states. The heterogeneity of the school design,

philosophy, and goals is intended to appeal to parents with distinct preferences for their children's education.

On average charter schools in Idaho have a higher pupil/teacher ratio of 19:1, compared to a state average of approximately 17:1. Three charter schools have extended their school year beyond that of the local district and two others operate as year-round schools.

Resources, Financing, and Facilities

According to the most recent (2003-2004) financial summary of Idaho school districts with a breakout for charter schools, only three had allocated funds for food services (school lunch), and only four of the sixteen schools had substantial funds allocated for capital projects, indicating that a permanent facility was being erected. Indeed, among the greatest challenges faced by Idaho Charter Schools has been their reliance on temporary and often inadequate facilities. In an evaluation of charter schools during the 2003-2004 school year, the Northwest Regional Educational Laboratory (NWREL) reported that "about 50 percent of charter schools in Idaho are operating in temporary facilities. It is still an uphill struggle for these schools to find permanent facilities. Some temporary facilities are crowded and limiting to student learning activities" (NWREL, 2004, p. 5).

Like their traditional public school counterparts, all of the charter schools in Idaho relied primarily on state funds (a per capita amount based on average daily attendance) and federal funds. Two of the sixteen charter schools also received sizable resources for general management and operations expenditures from undisclosed "other sources." Liberty Charter School and Coeur d'Alene Charter Academy practically matched their

state funds allocated to them (approximately \$2 million) with revenues from "other sources." While charter schools are encouraged by the Idaho Charter School Network to seek additional revenue streams for their schools, it appears that only these two schools have been successful. In general, it is unclear how charter schools finance their start up costs. It appears that new charters minimize start-up expenses by renting or using public facilities. They also appear to sacrifice certain services (such as providing school lunches) in order to defray the costs of establishing a new school.

Student Composition

Charter schools in Idaho are less ethnically diverse than the school districts within which they are situated. This is particularly true with respect to Hispanics, as charters typically enroll a quarter to a third as many Hispanic students as the district as a whole. Furthermore, in the Pocatello and Blackfoot school districts, where Native Americans represent 5.3% and 13.6% of the school-age populations, respectively, charter school enrollment of NativeAmericans is zero and 2%.

Percent of Ethnicity								
Schools and their	White	Black	Hispanic	Native	Asian/ Pacific			
sponsoring districts				American	Islander			
Blackfoot Charter	90.00	0.00	5.00	2.00	3.00			
Blackfoot District	66.29	0.39	18.23	13.57	1.52			
Anser Charter	93.60	0.00	1.50	1.50	3.40			
Hidden Springs Charter	91.06	0.54	1.62	1.08	0.54			
North Star Charter	95.00	0.00	1.00	0.00	4.00			
Boise Independent District	87.37	1.95	7.00	0.62	3.06			
Coeur d'Alene Charter	96.00	0.50	0.80	0.20	0.80			
Coeur d'Alene District	95.29	0.61	2.36	0.64	1.10			
Meridian Charter High	97.00	2.00	0.00	0.00	1.00			
Meridian Medical Charter	93.50	0.50	2.60	0.00	3.40			
Meridian Joint District	91.96	1.38	3.38	0.81	2.47			
Moscow Charter	95.00	0.01	0.03	0.00	0.01			
Moscow District	90.66	2.00	2.40	1.06	3.88			
Liberty Charter	90.00	0.00	7.00	1.00	2.00			
Nampa District	72.73	0.72	24.80	0.48	1.27			
Pocatello Charter	94.00	0.00	2.00	0.00	0.00			
Pocatello District	85.07	1.30	6.55	5.35	1.73			
Sandpoint Charter	98.00	0.00	1.00	0.00	1.00			

Lake Pend Oreille District	96.17	0.52	1.45	0.73	1.13
Idaho Leadership Academy	100.00	0.00	0.00	0.00	0.00
Snake River District	80.32	0.34	17.63	1.27	0.44
Idaho Virtual Academy	83.00	0.40	1.40	0.80	0.70
Butte County District	93.00	1.00	4.00	0.00	1.00
Richard McKenna	88.00	1.00	7.00	0.00	2.00
Mountain Home District	80.00	4.00	12.00	0.00	3.00
STATE OF IDAHO	85.89	0.80	10.85	1.22	1.24

^{**}Districts and State in bold. NCES – 2003-2004 school year

Several of Idaho's charter schools do not participate in the free/reduced price lunch program. Of those that do, the percentage of eligible students varies considerably (Table 5), though seldom does it match the rate for the state of Idaho as a whole (approximately 54%).

Table 5. Student Demographics by Charter Schools (in Percent Total of School Enrollment)

Name	Free/Reduced	Special	Gifted and	Limited	Title I	
	Price Lunch	Education	Talented	English		
				Proficiency		
Anser Charter School	0	13	10	1.4	0	
2. Blackfoot Community Charter School	65	20	0	0	0	
3. Coeur d"Alene Charter Academy	0	<1	0	0	0	
4. Hidden Springs Charter School	0	3.8	0	1.63	0	
5. Idaho Distance Education Academy		· ·	Not available			
6. Idaho Leadership Academy	48	4	8	0	0	
7. Idaho Virtual Academy	34	0.06	0.06	0	0.34	
8. Liberty Charter School	24.4	7	4	0	0	
9. Meridian Charter School	6	1	20	0	0	
10. Meridian Medical Arts Charter School	13.9	9.6	0	0	0	
11. Moscow Charter School	28	.45	0.018	0	0.09	
12. North Star Charter School	0	3	0	0	0	
13. Pocatello Community Charter School	34	17	4	0	0	
14. Richard McKenna Charter High School			Unknown	•		
(formerly Idaho Virtual High School)						
15. Sandpoint	0	20	0	<1	0	
16. Thomas Jefferson Charter School			Not available			
17. Victory Charter School	Not available					
18. White Pine Charter School		- -	Not available			

^{**} All demographic information for charter schools was provided by each respective charter school. (NWREL, 2004)

Student Mobility

The charter school sector in Idaho is marked by a high degree of student mobility. This in part reflects the growth of the sector. However, there is a lot of movement out of the sector as well as into the sector. As shown in Table 6, more than a quarter of the students attending regular (non-virtual) charter schools have left the sector at the end of the academic year. While some return to traditional public schools in Idaho, more have left the state or enrolled in private schools. The percentage is even higher among students in virtual charter schools, where the turnover rate has exceeded one-third. Within-year mobility is also high, particularly in the virtual schools.

Table 6: Student Mobility in the Charter School Sector

	Student Mobility in the Charter School Sector							
	Wit	hin-year		Betwe	en-years			
Where Charter School Students Went	Fall 02 to Spring 03	Fall 03 to Spring 04	Fall 04 to Spring 05	Spring 03 to Fall 03	Spring 04 to Fall 04			
Virtual Charter Schools Charter Idaho Traditional Public Schools Other Leavers as percentage of total	60 2 21 27.7%	1063 80 158 18.3%	1578 126 199 17.1%	425 118 128 36.7%	792 208 273 37.8%			
Regular Charter Schools Charter Idaho Traditional Public Schools Other Leavers as percentage of total	986 25 54 7.4%	1787 100 92 9.7%	2277 87 114 8.1%	938 161 204 28.0%	1400 222 313 27.6%			
Where Charter School Students Came From								
Virtual Charter Schools Charter Idaho Traditional Public Schools Other New arrivals as percentage of total	60 125 486 91.1%	1062 54 157 16.6%	1576 104 168 14.7%	420 242 639 67.7%	789 334 780 58.5%			

Regular Charter Schools

Charter	986	1788	2279	943	1403
Idaho Traditional Public Schools	37	63	76	616	532
Other	280	84	55	420	543
New arrivals as percentage of total	24.3%	7.6%	5.4%	52.3%	43.4%

Mobility and student achievement

Previous research has exploited this mobility to identify a charter school effect by comparing test score gains of the same students before and after they move between charter schools and traditional public schools. This is considered superior to a comparison of the gains of all charter school students to all students in the traditional public sector, inasmuch as charter school students may differ in systematic but unobserved ways from students in regular public schools. Indeed, in Idaho inferences about charter school effectiveness depend on which of the two methods is used.

Figure 1 depicts mean levels of mathematics achievement in traditional public schools and charter schools across the nine tested grades. While the data shown are from spring of 2005, the pattern is the same in all semesters. Achievement levels are higher in every grade in charter schools, the result of positive selection into the charter sector. In several instances, charter school students even outscore traditional public school students

at the next grade level.

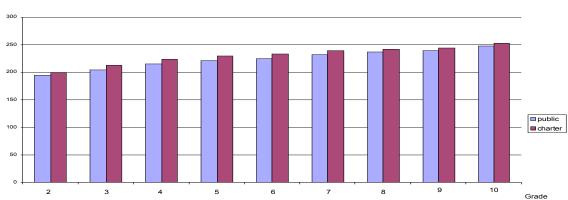


Figure 1: Comparison of Achievement Levels: Spring 2005

For this reason, it is more reasonable to compare charter schools with traditional public schools on the basis of student gains. Figure 2 depicts mean gains between fall and spring testing in the 2004-05 school year. In every grade, traditional public school students gain more than charter school students. (Again, the same pattern is evident in other years.) By this simple test, traditional public schools outperform charter schools. However, this conclusion rests on the implicit assumption that the students enrolled in charter schools do not differ from the students enrolled in traditional public schools in any other way that affects gains. As this may not be true, we consider the change in gain scores as students move between sectors.



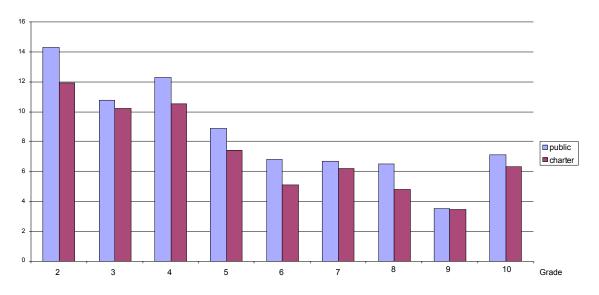


Figure 3a shows gain scores for students enrolled in fifth grade or lower in the 2002-03 year. Within-year gains (fall to spring) are shown for 2002-03 and 2003-04. The data are longitudinal: the students whose gains are depicted for 2002-03 are shown one year later in 2003-04. Because gains tend to diminish with advancing grade level (compare Figure 2), 2002-03 gains generally exceed gains in 2003-04. The middle columns in the graph depict students who changed sectors between these two academic years. Students who moved from traditional public schools in the first year to charter schools in the second year are the only group that experienced greater gains after the move. By contrast, those who moved from charter schools to public schools saw the greatest decline in gains.

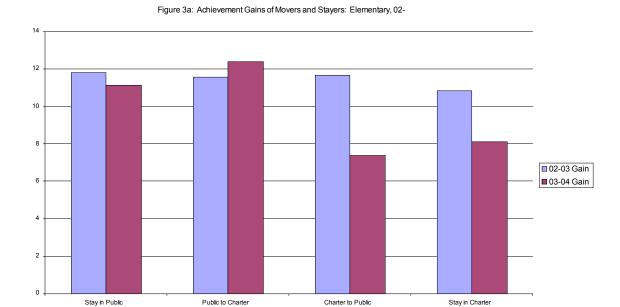
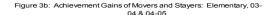
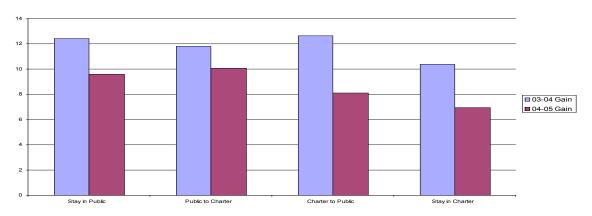


Figure 3b shows gains among elementary students for 2003-04 and 2004-05. With rare exceptions, these students are different individuals from those in Figure 3a. However, the same pattern generally holds. The smallest drop in gain scores occurred among students who moved from the public to the charter sector. The largest drop occurred among students who moved in the opposite direction.





The use of longitudinal data (Figures 3a and 3b) as opposed to cross-sectional data (Figure 2) leads to different conclusions about charter school effectiveness vis-à-vis traditional public schools at the elementary level. (Graphical evidence at the secondary level is mixed.) Whereas charter schools appear less effective with respect to mean gains, the longitudinal analysis favors charter schools.

Although researchers have shown a marked preference for longitudinal analysis, relying on a sample of movers can introduce biases if movers differ from the larger set of all charter school students. Among possible sources of bias are the following. (i) Movers may be atypical with respect to the quality of the student-school match. Although previous researchers have been particularly concerned that students leave a sector due to a poor match, we present evidence below that the reverse has been true among Idaho elementary school students. (ii) Movers may select on school quality, with the result that schools that are either better or worse than average for the sector are over-represented among a sample of movers. (iii) The quality of the student-school match may be a function of a student's prior educational history. For example, as argued by

Hoxby and Rockoff (2005), charter schools may be more effective with students who have attended them from the earliest grades than they are with students who arrive after attending traditional public schools. (iv) Students and their parents may mistake transitory downturns in student performance as evidence about school quality or the student-school match and move between sectors accordingly. The return of performance to a more normal level the following year creates the appearance of a positive charter school effect (if they have moved into the charter sector), a negative effect (if they have moved out of the charter school sector). (v) Serial correlation (trends in achievement) can be confounded with differences in school quality when movers switch sectors.

Whether these biases are worse than selection bias is an empirical question that is difficult to resolve. Accordingly we present two sets of estimates, one based on a longitudinal analysis of movers and the other based on a cross-sectional comparison of all students in the two sectors. Both analyses employ student gains as the dependent variable. The longitudinal analysis further controls for unobservable student characteristics by including a student fixed effect. The cross-sectional analysis does not. We follow this a brief discussion of the evidence favoring one estimator over the other. A more detailed treatment of this question appears in other work (Ballou, Teasley, and Zeidner, 2006).

Analysis of Achievement Gains

Our empirical model takes one of two forms,

(1)
$$y_{ijt} = \mathbf{X}_{ijt} \boldsymbol{\beta} + \sum_{g} C_{it} \gamma_g \psi_g + \alpha_i \phi_i + e_{it}$$

or

(2)
$$y_{ijt} = \mathbf{X}_{ijt} \boldsymbol{\beta} + \sum_{g} C_{it} \gamma_g \psi_g + v_{it}$$
.

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(1) includes student fixed effects ϕ_i while (2) does not. C_{it} is an indicator variable for charter schools. C_{it} is interacted with an indicator of grade, γ_g , allowing the charter school effect to differ across grades. \mathbf{X}_{ijt} represents student and school covariates. y_{ijt} is a student's fall to spring gain, normalized for the number of instructional days between fall and spring testing.¹

Data for this study have been furnished by Northwest Evaluation Association (NWEA). The state of Idaho has contracted with NWEA to provide tests for its statewide assessments in grades 2 through 10. Participation rates are over 90 percent. Although tests are administered in reading, language arts, and mathematics, for this study we use only the mathematics results.

We have a limited number of covariates for inclusion in the model. X_{ijt} includes indicators of race (white = 1) and special education, both interacted with grade level.² We also included dummy variables for year by grade interactions, to control for possible changes in the difficulty of the tests.

The model was estimated using fall-to-spring gain scores from 2002-03, 2003-04, and 2004-05 for students in grades 2 through 10, when testing is mandatory. Students who switched schools between fall and spring semesters were omitted from the sample.

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¹ Testing dates vary in Idaho. The average time elapsed between fall and spring testing is about 135 school days, with a standard deviation of slightly more than a week. We normalize gain scores by dividing by the approximate number of school days between fall and spring testing, multiplied by 180 to represent a "standard year's" gain. Students with missing test dates (about 10 percent of the charter school sample and 5 percent of the traditional public sample) were dropped from the analysis.

² Because all covariates are interacted with grade, there are no time invariant regressors in the model. Thus inclusion of student fixed effects does not cause any other variables to drop out. However, it is still the case that only movers directly furnish information about the effectiveness of charter schools relative to traditional public schools. Observations on non-movers furnish information about relative effectiveness of instruction at different grade levels within sector (charter or traditional public), but only through this channel do they have any influence on estimates of the difference in average effectiveness between sectors. Accordingly, we will continue to refer to the FE estimator as an estimator based on a sample of movers, which, though not strictly true here, correctly characterizes the rest of the literature.

We also dropped observations from Idaho's five virtual (on-line) charter schools.

Although of interest in their own right, these schools are so distinctive (and their combined enrollment so large) that their inclusion in the estimation sample would skew the comparison.³

Characteristics of the estimation sample are displayed in Table 7. Students are classified into three groups: those who remained in the traditional public sector throughout the sample period; those who attended only charter schools; and those who moved between sectors. Interestingly, there are more of the latter than of charter school stayers. Observations on movers peak during grades 5-8, suggesting that students are more likely to move in or out of charter schools at the same time they transition between elementary school and middle or junior high school.

Table 7: Sample Characteristics

	Sta	yers	Movers
	Traditional Public	Charter	
Percentage or mean			
White	84	94	93
Hispanic	12	3	2
Free or reduced-price lunch ^a	49	13	32
Special education	10	6	8
School days between fall and spring tests	136	134	136
Percentage of students in:			
Second Grade	11	17	7
Third Grade	11	13	9
Fourth Grade	11	11	11
Fifth Grade	11	10	14
Sixth Grade	11	11	15
Seventh Grade	12	11	15
Eighth Grade	12	9	14
Ninth Grade	11	9	10
Tenth Grade	10	9	5

³ Students enrolled in virtual schools account for 35% of the charter school observations.

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No. of observations			
2002-03	123209	455	1256
2003-04	152886	1149	1228
2004-05	155255	1771	1307

a. Eligibility for free and reduced-price lunch is understated in charter schools, as some do not participate in the lunch program.

Compared to students in the traditional public sector, students who spent at least part of this period in a charter school are more likely to be non-hispanic whites. There are also fewer special education students attending charter schools, though the percentage among movers is virtually the same as among traditional public school students.⁴

Results

Estimates of the charter school effect are displayed in Table 8. (A full set of results with coefficients on all the variables in the model is available from the authors.) Models were estimated by ordinary least squares. Standard errors have been adjusted for clustering at the school level using a robust asymptotic covariance matrix. As anticipated, there is a pronounced difference between the models with and without fixed effects. The charter school effect is negative at every grade in the latter. In the former, gains are greater in charter schools in the elementary grades, with the estimates for grades three, four, and five significant at the 5 percent level or better. Between columns 1 and 2 there is a discrepancy of about seven points for third graders, four and a half points for

⁴ Because several of Idaho's charter schools do not participate in the free and reduced-price lunch program, data on student eligibility are spotty. Accordingly we have not included this variable as a control.

⁵ In order to compute the robust standard errors, it was sometimes necessary to drop observations where the number of students in a particular grade and school was quite small (e.g., fewer than four). This accounts for some of the discrepancies in sample sizes in Table 2. The impact on the coefficient estimates was trivial.

fourth graders. These are sizeable differences, given the mean annual gain in these grades is 12 points.

Table 8: Estimated Charter School Effects

				Controlling for		Fall to Fall Gains	
			Charter S		as Depen	dent	
	Baseline	Model	Age		Variable		
	,						
Oneda	w/o FE	w/FE	w/o FE	w/FE	w/o FE	w/FE	
Grade	0.57	4.00	0.57	0.04	0.05	4.00	
2	-3.57	4.28	-3.57	0.21	0.25	4.66	
_	(0.82)	(3.17)	(0.71)	(1.87)	(0.55)	(1.29)	
3	-1.44	5.49	-1.44	3.26	1.12	4.26	
	(1.05)	(1.73)	(0.90)	(1.11)	(0.65)	(0.73)	
4	-1.97	3.06	-1.97	1.89	0.59	2.11	
	(1.34)	(0.78)	(1.24)	(0.76)	(0.57)	(0.60)	
5	-1.63	1.5	-1.63	0.66	0.12	0.75	
	(1.21)	(0.86)	(1.18)	(0.97)	(0.54)	(0.81)	
6	-0.55	0.44	-0.55	-0.23	0.66	0.74	
	(1.76)	(1.12)	(1.82)	(1.09)	(0.52)	(0.42)	
7	-2.02	-2.11	-2.02	-2.48	-0.57	0.84	
	(1.04)	(1.05)	(0.80)	(1.03)	(0.37)	(0.46)	
8	-1.87	-0.68	-1.87	-0.82	-0.79	0.82	
	(0.57)	(0.67)	(0.38)	(0.72)	(0.38)	(0.45)	
9	-0.74	-0.49	-0.74	-0.48	-0.29	0.31	
-	(0.82)	(0.54)	(0.81)	(0.48)	(0.34)	(0.50)	
10	-1.07	-0.24	-1.07	-0.29	0.29	4.66	
10	(1.03)	(0.91)	(1.00)	(0.84)	(0.34)	(1.29)	
Other regressors:	(1.00)	(0.01)	(1.00)	(0.04)	(0.04)	(1.20)	
Race x Grade	yes	yes	yes	yes	yes	yes	
Special education x	yes	yes	yes	yes	yes	yes	
Grade	yes	yes	yes	yes	yes	yes	
Year x Grade	yes	yes	yes	yes	yes	yes	
Years of charter	yco	yco	yes	yco	yes	you	
operation	no	no	yes	yes	no	no	
			, - 3	,			
N	438516	438505	438516	438516	241192	241192	

We have explored a variety of alternative specifications. (Details are provided in Ballou, Teasley, and Zeidner, 2006.) The results in Table 8 are robust to the inclusion of controls for mobility between schools and districts. The estimates in column 1 are

substantially unchanged if we control for initial achievement in fall, 2002, assuring us that our negative findings are not simply due to the fact that charter school students start at a higher level and therefore show smaller gains.

Studies of charter schools in Texas, North Carolina, and Florida have found that new charter schools are less effective than schools that have been in operation longer (Hanushek et al., 2005; Bifulco and Ladd, 2004; Sass, 2004). Although consistent with the anecdotal evidence on the difficulties faced by new charter schools, this pattern does not appear to hold in Idaho. Interactions of charter school age with grade level are negative and usually statistically significant. Controlling for charter school age diminishes the charter school coefficients in the model with student fixed effects when the latter are evaluated at the mean charter school age for each grade level. However, there continue to be differences of 2 points or more between the charter school estimates for grades two through five (columns 3 and 4), depending on the inclusion of student fixed effects.

Finally, our use of fall to spring gains as a measure of school effectiveness may be unfair to schools with distinctive programs that reduce summer learning loss. To explore these possibilities, we substitute fall to fall gains for the dependent variable.⁶ The largest impact is on the model without student fixed effects. Charter school effects are no longer negative in the elementary grades, though the positive coefficients are not statistically significant. However, we still obtain substantially more positive estimates of the charter

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⁶ The dependent variable was calculated as [(Change in Scale Score)/(Elapsed Calendar Days)](180). The model includes binary indicators for students who switched sectors over the summer.

school effect from the fixed effects model in the early elementary grades and now, surprisingly, grade 10.⁷

On average, attending a charter school appears to have had a positive impact on mathematics gains for students who moved between sectors during the sample period.

The evidence on non-movers is much less clear. Non-movers in the charter sector do not fare better than non-movers in the traditional public sector; indeed, they gain less. But because we cannot compare non-movers to their own pre- or post-charter experience, it is possible that this gap is an artifact of selection: students predisposed to lower gains selected charter schools.

One problem with this explanation is that it requires a very skewed selection to generate the estimates in column 1 of Table 8, if in fact the true effect of charter schools, at least at the elementary level, is represented by the positive coefficients in column 2. In Ballou, Teasley, and Zeidner (2006), we estimate that charter schools would need to recruit more than five below-average gainers for each above-average gainer to turn true effects equal to the median elementary grade estimate in column 2 into apparent effects equal to the median of the elementary grade estimates in column 1. Given how hard it is to predict gains of individual students, it is difficult to see this happening by policy or by chance.

This suggests we consider other ways in which movers might differ from non-movers.⁸ First, movers are more likely to select newer charter schools (and, as we have

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⁷ These estimates rely on only two years of data: gains between fall of 2002 and fall of 2003, and between fall of 2003 and fall of 2004. To verify that the differences between columns (6a) and (6b) and the rest of Table 2 are not due to this change in the sample, we have estimated the baseline model using the same sample. The results (not shown) are very similar to those in columns 1 and 2.

⁸ We summarize a more detailed discussion that can be found in Ballou, Teasley, and Zeidner (2006).

seen, in Idaho these schools appear to be more effective than charter schools that have been operating longer). Second, there is a positive association between the number of students moving back to the traditional public sector from a charter school and test score gains the year prior to the move among students who remain at that charter school. This does not prove that the schools losing the most students are the better schools (there could be selection effects among the stayers), but it is suggestive. Finally, pre-move gains among charter school leavers are typically greater than the same-year gains of charter school stayers at the same school. That is, not only do the charter schools with high average gains lose more students back to the traditional sector (our analysis controls for school size), but the students they lose had higher mean gains still. This suggests we might want to be particularly cautious about drawing conclusions above the average effectiveness of charter schools from such a sample. It also raises questions about the motives of these students and their parents. In Ballou, Teasley and Zeidner we report some evidence that students leaving the charter sector with high gains tend also to have lower level scores than their classmates. Students who are benefiting the most from attending charter schools, in terms of learning gains, may nonetheless feel out of place when comparing themselves to their classmates' level. However, the evidence on this point is not as strong as the other evidence we have cited, and more work needs to be done to understand mobility decisions.

Conclusion

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⁹ We do not know why Idaho differs from other states in this regard. It may be an historical accident. It may also be that in Idaho, newer schools recruit more heavily from the particular clientele the school was established to serve, but that as schools mature, they end up taking more students from the general population to whom the school's instructional program is not as well suited.

Our examination of charter schools in Idaho has turned up several differences between the experience of Idaho and other states, underscoring that generalization about this sector remains hazardous. Charter schools in Idaho tend to attract students who have been performing above average in traditional public schools. Newer charter schools appear to be more effective than schools that have been in operation longer, though this may in part reflect changes in the mix of students recruited to a school over time. Finally, the analytical method preferred in the literature—a longitudinal analysis comparing gains of individual students before and after their enrollment in a charter school—shows that charter schools at the elementary level have been more effective than traditional public schools in promoting mathematics achievement. However, a simple cross-sectional comparison of gains in the two sectors indicates the opposite. This is in sharp contrast to findings from states such as Texas, North Carolina, and Florida, where the conclusion that charter schools have been less effective than traditional public schools has not depended on statistical methodology. Though the cross-sectional analysis is subject to selection bias, the longitudinal analysis is sensitive to differences between the sample of students who move between sectors and those who remain in one sector or the other. If biases from the latter source are more important (and there is some evidence to that effect), our qualitative conclusion about charter schools is similar to that reached by other investigators.